*I. Ye. DEKABRUN*

PHASE I BOOK EXPLOITATION     SOV/4477

Akademiya nauk SSSR.   Institut avtomatiki i telemekhaniki

Spravochnik po elementam avtomatiki i telemekhaniki; Vyp. 3: Rele vremeni,
    programmnyye ustroystva, rele scheta, iskateli (Handbook on Components of
    Automatic Control and Remote Control, no. 3: Time Relays, Timers, Counting
    Relays, Selectors) Moscow, Gosenergoizdat, 1960. 136 p.   Errata slip in-
    serted.   30,000 copies printed.

Compilers: I. Ye. Dekabrun, and N. R. Teder; Ed. (Title page): B. S. Sotskov;
    Ed.: V. I. Timokhina; Tech. Ed.: N. I. Borunov.

PURPOSE:   This handbook is intended for technical personnel engaged in the
    fields of automation and telemechanics.

COVERAGE:   This third issue of the handbook on automation and telemechanical
    components describes relays and devices which make possible a
    definite program of circuit or process operation.   It includes diagrams of
    relays and devices designed especially for this purpose and also material on

Card 1/3

Handbook on Components of Automatic (Cont.)                    SOV/4477

   automatic telephone apparatus which are used in automated circuits. The parameters of each device are indicated in tables. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

Card 2/3

S/115/60/000/010/019/028
B021/B058

AUTHOR:     Dekabrun, I. Ye.

TITLE:      First International IFAC Congress on Automatic Control

PERIODICAL:   Izmeritel'naya tekhnika, 1960, No. 10, pp. 60-61

TEXT:  This Congress was held in Moscow from June 27 to July 2, 1960
and was organized by the Natsional'nyy komitet Sovetskogo Soyuza po
avtomaticheskomu upravleniyu (National Committee of the Soviet Union for
Automatic Control). It was attended by 1111 delegates from 29 countries
and more than 1000 guests. 274 reports were delivered in 2 plenary
sessions and in the sections. The work of the Congress stood under the
motto: "For Theory - Widest Possible Utilization; for Technical Means -
Maximum Safety; for Automation Systems - High Efficiency", and was
following three directions: theory of automatic control, technical means
of automation and telemechanics, their application. It can be seen from
the reports and their discussion that the following principles were
ascertained and developed: transfiguration of parameters in automatic
control systems; obtaining, processing, transmitting, and utilizing data;

Card 1/2

First International IFAC Congress on  S/115/60/000/010/019/028
Automatic Control  B021/B058

effective principles for the transmission of information in automatic and
telemechanical systems; new methods of building up technical means for
increasing safety, precision and service life; working out of a new
technology.

Card 2/2

S/103/60/021/04/05/007
B014/B014

AUTHORS:     Dekabrun, I. Ye., Kozlov, N. P., Krassov, I. M. (Moscow)

TITLE:       Dynamics of an Electromagnetic Control Element

PERIODICAL:  Avtomatika i telemekhanika, 1960, Vol. 21, No. 4, pp. 506-512

TEXT:   The polarized electromagnetic control element under consideration
is schematically represented in Fig. 1. The armature travel is described
by the differential equation (1). It is said that both the type of load
and the frictional forces of the armature are to be taken into account
in studying an electromagnetic control element. The differential equation
(4) describes the armature travel without considering a possible load.
The forces usually acting upon the armature are written down as the sum
of three single forces: $P = P_1 + P_2 + P_3$; $P_1$ is the component produced
by the sources of polarization, $P_2$ is the component produced by the
sources of control, and $P_3$ is produced by interaction between the
magnetic fluxes of the sources of control and polarization. The last-
mentioned component virtually determines the direction in which the

Card 1/2

XXXX
xáskpśx

*Dynamics of an Electromagnetic Control Element     S/103/60/021/04/05/007
B014/B014

armature travels. Next, formulas are derived for the three components,
and it is shown that $P_2 = 0$ if the conductance of the circuit is constant
as compared to the magnetic flux of the control coil. Thus, formula (21)
is obtained: $P = P_3 + P_1$, which is explicitly written down with (22).
The latter equation leads to a reduced form of the equation of motion (26)
of the armature, which is used to calculate small angles of deflection.
Here, the term describing the friction of the bearings is negligible,
and one obtains a differential equation for the forced vibration (27).
The transmission function is given in equation (28). Next, some experi-
mental results are discussed. Fig. 7 is a graphical representation of the
phase-frequency characteristic for different moments of inertia of the
armature. Results of measurement are compiled in Table 1. The character-
istic indicates that the amplitude-frequency characteristic is deformed
by loading the armature spindle in such a way that the phase delay is
prolonged. The experiments were carried out by L. P. Levin, G. Yu.
Chubarova, and G. M. Val'kova. There are 7 figures, 1 table, and
3 Soviet references.

$V_C$

SUBMITTED:     June 30, 1959

Card 2/2

S/196/62/000/013/002/018
39175
E194/E155

AUTHOR:     Dekabrun, I.Ye.

TITLE:     The possibilities of using rhenium and its alloys as contact materials

PERIODICAL:     Referativnyy zhurnal, Elektrotekhnika i energetika, no.13, 1962, 3-4, abstract 13 B 24. (In the collection of papers "Reniy" (Rhenium). Moscow, AS USSR, 1961, 180-191).

TEXT:     Tests suited to the specific requirements of electrical contact materials were made on pure rhenium, on alloys of rhenium and tungsten and on compounds of rhenium and silver. Details are given of the circuits used to measure: contact resistance; maximum arc currents; and erosion effects. Data are given on the minimum voltages of arc formation and comparative volt-ampere characteristics of rhenium, tungsten and their alloys. Photographs show the surface of various contacts after 10 000 and after one million circuit-breaking operations. The conclusions are: 1) pure rhenium, considered as contact material in comparison

Card 1/2

The possibilities of using rhenium...  S/196/62/000/013/002/018
E194/E155

with tungsten, is of very constant contact resistance both in
operation and in storage.  It is, therefore, recommended instead
of tungsten when the contacts fail by corrosion.   2) Alloys of
rhenium and tungsten have a number of advantages over tungsten;
their contact resistance is always constant, as even a small
amount (5%) of rhenium in the alloy gives a manifold improvement
in contact resistance stability.  The alloys display excellent
resistance to erosion by short-duration arcs and they are,
therefore, recommended for equipment with a contact pressure of
200-250 g subjected to such arcing.   3) Compounds of rhenium and
silver have no advantage over pure silver.
2 references.

[Abstractor's note:  Complete translation.]

Card 2/2

USOV, Vladimir Vasil'yevich[deceased]; DEKABRUN, I.Ye., red.;
    KIRILLOVA, Z.S., red.; POVOLOTSKAYA, M.D., red.; LARIONOV,
    G.Ye., tekhn. red.

    [Metals for electrical contacts] Metallovedenie elektriche-
    skikh kontaktov.  Moskva, Gosenergoizdat, 1963.  207 p.
                                              (MIRA 16:6)
        (Electric contactors)

*D E K A B R U N, I. YE.*

SOT*SKOV, B. S., DEKABRUN, I. Ye.

"Probability of the correct operation of physical models of electric contacts."

Report present at the Seminar on reliability problems [Reliability Section of the Scientific Council on Cybernetics, Presidium AS USSR] 28 Jan - 25 Feb 63

RAZUMIKHIN, Mark Alekseyevich; DEKABRUN, I.Ye., red.

[Erosion resistance of low-current contactors] Erozionnaia
ustoichivost' malomoshchnykh kontaktov.  Moskva, Izd-vo
"Energiia," 1964.  80 p.  (Biblioteka po avtomatike, no.104)
                                        (MIRA 17:8)

SOTSKOV, B.S., otv. red.; DEKABRUN, I.Ye., red.; ZOLOTYKH, B.N., red.; KUZNETSOV, R.S., red.; KIRILLOVA, Z.S., red.; SHUROVA, Yu.P., red.

[Electric contactors; transactions] Elektricheskie kontakty; trudy. Red. koll. B.S.Sotskov i dr. Moskva, Energia, 1964. 502 p. (MIRA 17:8)

1. Vsesoyuznoye soveshchaniye po elektricheskim kontaktam i kontaktnym materialam. 3d, Moscow, 1962.

AVEN, O.A.; DVORETSKIY, V.M.; DOMANITSKIY, S.M.; ZALMANZON, L.A.;
    KRASSOV, I.M.; KRUG, Ye.K.; TAL', A.A.; KHOKHLOV, V.A.;
    BULGAKOV, A.A.; DEMIDENKO, Ye.D.; BERNSHTEYN, S.I.; YEMEL'YANOV,
    S.V.; LERNER, A.Ya.; MEYEROV, M.V.; PEREL'MAN, I.I., FITSNER,
    L.N.; CHELYUSTKIN, A.B.; ZHOZHIKASHVILI, V.A.; IL'IN, V.A.;
    AGEYKIN, D.I.; GUSHCHIN, Yu.V.; KATYS, G.P.; MEL'TTSER, L.V.;
    PARKHOMENKO, P.P.; MIKHAYLOV, N.N.; FITSNER, L.N.; PARKHOMENKO,
    P.P.; ROZENBLAT, M.A.; SOTSKOV, B.S.; VASIL'YEVA, N.P.; PRANGISHVILI,
    I.V.; POLONNIKOV, D.Ye.; VOROB'YEVA, T.M.; DEKABRUN, I.Ye.

Work on the development of systems and principles of automatic
control at the Institute of Automatic and Remote Control
during 1939-1964. Avtom. i telem. 25  no. 6:807-851 Je '64.
                                        (MIRA 17:7)

DEFABRU", L. I., Engr.

"Remote Control of a Model Boat", (from the English.)

Avtomatika i Telemekhanika,  Vol 6, No. 3, 1941.

DEKABRUN, L. L.

Jan 1947

USSR/Engineering
        Controls
        Drives, Mechanical

"Magnetoelectric Mechanism for Automatic Control and
Regulation of Governing Devices," L. L. Dekabrun, 7 pp

"Avtomat i Telemekh" Vol VIII, No 1

Experiments were conducted at the Elements of Auto-
matic Machinery Construction Section of the Institute
of Automatic Machinery and Telemechanics of the Acad-
emy of Sciences of the USSR. Sets forth a method of
calculating data for magnetoelectric mechanisms for
continuous control of automatic regulating devices,
when the values of the controlled factor and the pre-
liminary amplification are measured electrically.

22T47

Jan 1947

USSR/Engineering (Contd)
        Controls
        Drives, Mechanical

Gives formulas for calculations and the results of
empirical investigation.

DEKABRUN, L. L.

USSR/Electronics
Telemechanics
Regulation

Jul/Aug 49

PA 51/49T29

"Regulation of a Single-Phase Shaded Pole Motor in Automatic Control Instruments," L. L. Dekabrun, Inst of Chem Phys, Acad Sci USSR, 9 pp

"Avtomat i Telemekh" Vol X, No 4

Single-phase shaded pole induction motors have recently found wide usage in continuous-action tracking systems. Discusses methods to select parameters of starting circuit to secure maximum starting moment. Discusses two variations of passive starting circuits: with direct connection of shading coils to a tube, and connection through an intermediate transformer. Evaluates influence of motor's magnetic shunts on the starting moment. Submitted 4 Jan 49.

51/49T29

DEKABRUN, L.L.

Selective amplifiers for low frequencies having double T-form filters.
Sbor.nauch.rab. MIFI no.9:75-87 '55.
(Amplifiers, Electron-tube)                    (MIRA 10:1)

1975. K-VOLTAGE STABILIZERS FOR LABORATORY
POWER SUPPLIES. L.I.Dekabrun.
Radiotekhnika, Vol. 10, No. 10, 51-6 (1955). In Russian.

621.316.722.9 : 621.311.6

After a review of conventional voltage stabilizers a new
K-stabilizer is described. It operates on the principle of auto-
matic regulation of the magnitude of the a.c. input. Such sta-
bilizers, it is claimed, permit smooth regulation of the output
potential over very wide limits. As an example, a K-stabilizer
built on this principle is described. The output potential can
be varied between 1.2 to 1.6 kV for a load current of 1.5 mA.
Varying the a.c. input potential by 10% causes a change of 0.5%
at the output terminals.

Z.F.Wojnar

Dekabrun, L.L.

Stabilization of the temperature of the ion source in the MS-1 and MS-3 mass spectrometers. G. D. Tantsyrev, L. L. Dekabrun, and V. L. Tal'roze. *Zhur. Tekh. Fiz.* 25, 1965 (1955).—An improvement is described (3 drawings) of the source of ions which allows the temp. to be kept const. within ± 0.5°, as compared to older models of the same mass spectrometers, where the constancy was achieved within 5-6° only. This is really of importance, as e.g., in butane the intensity of the lines chan es 0.35% if the temp. of the ion source varies 1°. Two mass spectrograms are presented for heptane and butane, which make the improvement obvious. Werner Jacobson

USSR/ Physics - Mass spectrum                                    FD-3150

Card 1/4          Pub. 153 - 6/26

Author       :  Dekabrun, L. L.; Lyubimova, A. K.

Title        :  System of automatic magnetic scanning of mass-spectra

Periodical   :  Zhur. tekh. fiz., 25, No 13 (Novmeber), 1955, 2282-2285

Abstract     :  One of the principal units of the mass-spectrometer intended for molecular
                anaylsis is the system of spectrum scanning.  The best method for scanning
                is the variation of the magnetic field strength of the mass-separator.
                For the satisfaction of most practical problems the scanning must encom-
                pass the range of masses from 12 to 200.  In certain cases there arises
                the necessity of expanding this range toward one or the other side.  The
                principal difficulties of the realization of magnetic scanning are not
                the overlapping of the indicated range of masses (V. L. Tal'roze, ZhTF,
                same issue, p. 2280-2281), but, on the one hand, the exclusion of spon-
                taneous fluctuations in the magnetic field strength in the scanning
                process and, on the other hand, the automatization of the scanning pro-
                cess which would jointly with the recording system ensure the minimum time
                expended upon the recording of the spectrum.  The latter consideration
                makes desirable the variation of the magnetic field strength in accordance
                with the exponential law according to time (see V. L. Tal'roze, op. cit.).
                The problem of magnetic scanning of mass-spectra was solved by the authors

FD-3150

in connection with the development of an analytic mass-spectrometer MS-1
(Tekhnicheskaya dokumentatsiya promshlennogo obraztsa mass-spektrometer
MS-1 [Technical documentation of industrial sample of the mass-spec-
trometer MS-1), in which for overlapping of mass range 12-200 with
accelerating potential of 1900 volts there is required (taking into
account hysteresis) a change in the current of the mass-separator's
electromagnet from 20 to 140 microamperes. Elimination of magnetic
field fluctuations inadmissible during taking of mass-spectra is effected
by strict stabilization of the current in the windings of the electro-
magnet at each value of this current established during the scanning
process. As noted by the authors, the literature has published only one
system of automatic magnetic scanning of wide mass-spectra (J. A. Hipple,
D. J. Grove, W. M. Hickam, Rev. Sci. Instr., 16, 69, 8, 1945; D. Grove,
J. Hipple, Rev. Sci. Instr., 18, 837, 1947). In this system (see figure
of Hipple scanning circuit) stabilization of current in the windings
of magnet is realized indirectly: one stabilizes the voltage of the
source supplying the circuit controlling the magnet current and main-
tains practically invariable the consumption of current from this source
etc. The scanning system developed by the authors is a system of
current stabilization directly in the windings of the scanning electro-
magnet; each value of the current strength in the electromagnet is
assigned by the supporting potential of the stabilization system, this
potential being able to vary, together with the current in the electromagnet

windings, according to any law in time, including the exponential law.
The current stabilization system is an ordinary system of static regu-
lation:  the current in the electromagnet windings $I_m$ flows through
constant control resistance $R_e$ the voltage drop $U_1 = I_m R_e$ in which is
compared with the support potential $U_0$; an electronic circuit of great
sensitivity tries to maintain the equality of these voltages, thanks to
which practically full proportionality between current $I_m$ and support
voltage $U_0$ is attained:  $I_m = U_0/R_e$.  Departure from exact proportionality
is determined by the circuit parameters, considered by the authors in
the remainder of their work.  The principles governing the scanning circuit
realized by the authors are shown in figure 2 (Theoretical circuit of
smooth scanning in a wide range):  The electromagnet winding is connected
to the anode link of the output tube of the electronic circuit (this tube
is characterized by large transconductance S), and control resistance
$R_e$ is connected to cathode line; the voltage difference $I_m R_e - U_0$ is
amplified by a voltage amplifier k times and is fed into the controlling
network of the output tube, here the exact relation between support
voltage and current having the following form:  $I_m = kSU_0/(kSR_e + 2)$, which
passes over into the above-mentioned expression $I_m = U_0/R_e$ for large values
of effective transconductance of the electronic circuit kS.  On a similar
principle the authors constructed the system for the stabilization of
current in the magnet of the mass-spectrometer MS-1; in this system,
however, the magnet's windings, just as the control resistance, are
connected to the cathode link of the output tube, in consequence of which

the dynamic range of normal amplifiers of voltage turns out to be
insufficient for overlapping of the entire scanning range into one
receiver; therefore along with a smooth regulation of magnet current
use is made of step change-over of regulation limits (e.g. in the system
MS-1, in which exists current variation from 5 to 500 microamperers,
there are 17 such steps). The necessity of carrying out step change-
over complicates the automatization of the scanning process. The
authors' scanning system was realized in two variants: with linear and
exponential variation of the magnetic field strength in time, the dif-
ference between these variants consisting only in the methods of ob-
taining the support voltage: in the case of the linear scanning the
support voltage is taken from the rheochord set in motion by a reversing
electric motor, and in the case of exponential scanning the support
voltage is obtained in link of a condenser discharging into fixed R.

Institution :

Submitted    : May 25, 1955

621.317.33 + [621.317.39 : 531.71]    2548

Regenerative Measuring Pickups.—
E. J. Dukalsun. (Avtomatika i Telemekhanika,
Dec. 1956, Vol. 17, No. 12, pp. 1114-1122.)
Analysis is presented of devices for measur-
ing r.f. conductivity or linear displacement
by means of the damping effect on a tuned
circuit.

DERABRUN, I.L.

Self-excitation of amplifier stages with a load in the cathode circuit. Nak.vop.inzh.fiz.  no.1:85-99 '57.                    (MIRA 12:7)
         (Electronic circuits)    (Amplifiers, Electron-tube)

*DEKABRUN, L.L.*

DEKABRUN, L.L., kand. tekhn. nauk, dots.

Filters and regulators of current supply for electronic instruments.
Zbor. nauch. rab. MIFI no.12:3-4 '57.                    (MIRA 10:11)
                        (Electronic control)

*DEKABRUN, L.L.*

DEKABRUN, L.L., kand. tekhn. nauk, dots.

Bridging amplifiers used in recording instruments. Zbor. nauch. rab.
MIFI no.12:25-35 '57.                                    (MIRA 10:11)
                        (Electronic instruments)

PA - 3218

AUTHOR:       DEKABRUN, L.L.
TITLE:        On Smoothing Filters of Rectifiers of Low Performance.
              (O sglazhivayushchikh fil'trakh malomoshchnykh vypryamiteley.Russian).
PERIODICAL:   Radiotekhnika, 1957, Vol 12, Nr 4, pp 58 - 63  (U.S.S.R.)
              Received: 6 / 1957                    Reviewed: 7 / 1957

ABSTRACT:     Experiments show that the basic characteristics of the supply source,
              namely its internal resistance and the size of the alternating-vol-
              tage base, depend very strongly on the correct selection of the ele-
              ments of the smoothing filter and of their performance. The paper
              under review investigates the dynamic inductance of the impedance
              coil which determines the smoothing properties of the filter, and de-
              rives the equation, with respect to the unit of area of the cross
              section of magnetic conductance, for this inductance $L_d o$. The thus
              obtained curves show that at sufficiently great magnetizing ampere
              turns the air gap increase the inductance of the impedance coil. It
              is shown that, in designing the impedance coil, one should content
              himself with that number of turns which goes into the clearance of
              the core,  with the cross section of conductance of the winding sa-
              tisfying the given current from a termal point of view. In impedance
              coils with windings of enamel-coated wire the current density in the
              turns must not be higher than $2 - 2,5$ $A/mm^2$. These considerations
              are illustrated with the aid of a concrete example. It is possible
              to select the parameter of a $\Pi$-shaped filter in the following order:

Card 1/2

PA - 3218

On Smoothing Filters of Rectifiers of Low Performance.

(1) The condenser $C_1$ and the resistance of the transformer and of the kenotron $R_1$ are selected in accordance with the maximum permissible charging-current peaks for the kenotron rectifier; (2) The inductance of the impedance coil $L_d$ must satisfy the following interrelationship:

$$m\omega L_d \geqslant (10 \div 12) \frac{1}{m\omega C_1}$$ ; here m stands for the number of phase of the voltage to be rectified, and for the frequency of this voltage; (3) In accordance with the necessary greatness of the smoothing coefficient of the fundamental oscillation of the rectified voltage the greatness of the capacity $C_2$ of the filter is determined.

Such a smoothing filter has the smallest dimension and increases least the internal resistance of the supply source. (5 reproductions, 3 Slavic references).

ASSOCIATION:      Not given
PRESENTED BY:
SUBMITTED:        29 March 1955
AVAILABLE:        Library of Congress

Card 2/2

*DEKABRUN, L.L.*

AUTHOR:     Dekabrun, L. L.                              57-27-7-21/40

TITLE:      Method of Measuring and Recording "Ultra-Small" Currents
            (O metodike izmereniya i registratsii "sverkhmalykh" tokov)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 7, pp. 1578-1583
            (USSR)

ABSTRACT:   It is shown that for the measurement of currents below $10^{-14}$A that
            method is the most accurate which, in the course of certain inter-
            vals time T, takes into account each elemental charge participa-
            ting in the production of the current to be measured. In this con-
            nection the measurement results is to a small extent dependent on
            the amplification coefficients of the individual parts of the
            measuring circuit and completely independent of the fluctuation-
            -voltages produced in the scheme. The stages of the procedure of
            the system of measurement and the completescheme of its electron-
            part are given. Some operating figures of the measurement system
            are more thoroughly discussed. The measuring device is very stable.
            Its essential deficiency is the long duration of the adjustment of
            reading (more than 1 minute). There are 6 figures and 3 references,
            1 of which is Soviet.

Card 1/2

Method of Measuring and Recording "Ultra-Small" Currents.  57-27-7-21/40

ASSOCIATION:  Institute of Chemical Physics AS USSR, Moscow (Institut khimi-cheskoy fiziki AN SSSR, Moskva)

SUBMITTED:  August 30, 1956

AVAILABLE:  Library of Congress

1.  Electric currents-Measurement

Card 2/2

*DEKABRUN, L. L.*

AUTHORS:      Dekabrun, L. L., Purmal', A. P.          20-6-25/42

TITLE:        Indication of Radicals by the Nuclear Resonance Method
              (Indikatsiya radikalov yaderno-rezonansnym metodom)

PERIODICAL:   Doklady AN SSSR, 1957, Vol. 116, Nr 6, pp. 983-985 (USSR)

ABSTRACT:     The pitch of the signal of nuclear resonance absorption de-
              pends on the spin-lattice-relaxation time $T_1$ (by applying the
              method of the socalled rapid passage). By reducing $T_1$ the sig-
              nal increases. Small additions of paramagnetic ions allow the
              observation of the signal of absorption of the resonance with
              samples of great values of $T_1$ – the temporary study of the
              applications of the nuclear resonance method for the determinat-
              ion of free radicals with autodyne-controls. A typical oscillo-
              gram of the proton resonance absorption of water with an addit-
              ion of $CuSO_4$ is illustrated in an attached figure. The veri-
              fication of the opinions of the author on the influence of the
              radicals on the spin-lattice-relaxation time began with the most
              simple case, viz. with the solution of a stable radical. Pure
              benzene produced no signal of a proton-absorption with the
              used apparatus. With an artifical reduction of the relaxation-
              time by increasing the viscosity of the system, the authors ob-
              tained the expected result. A solution of diffusion oil in benz-
Card 1/3      ene (30 per cent by volume) produced a signal of the proton

Indication of Radicals by the Nuclear Resonance Method.    20-6-25/42

resonance exceeding the noise-level. The same solution with an admixture of diphenylpikril-hydrazile produced an absolutely clear signal. According to the opinion of the authors, this effect can be observed on a large scale with more simple radicals. The thermal decomposition of $H_2O_2$ was chosen as experimental object. Neither water, nor a 30 per cent solution of $H_2O_2$ produced a proton resonance signal at room temperature. By increasing the temperature the signal of proton absorption of the decomposing $H_2O_2$ was produced. With a further increase of temperature the signal of proton absorption grew more intensely. The oscillograms recorded with decomposing $H_2O_2$ are illustrated in an attached figure. With an increase of temperature the relaxation time grows according to the law

$T_1 \sim T/e^{A/T}$. The increase in relaxation-time with the temperature reduces the pitch of the signal of resonance-absorption. The intense reduction of the relaxation time in some solid samples which were exposed to rays of high energy is very important. Such an irradiation produces F-centers. Such an F-center shows a behavior similar to that of a free radical. This method for the indication of the free radicals may complete the more precise and more sensitive method of the paramagnetic re-

Card 2/3

Indication of Radicals by the Resonance Method.        20-6-25/42

sonance of electrons.
There are 3 figures, 4 references, 4 of which are Slavic.

ASSOCIATION:   Institute of Chemical Physics AN USSR
               (Institut khimicheskoy fiziki Akademii nauk SSSR)

PRESENTED:     March 29, 1957, by V. N. Kondrat'yev, Academician.

SUBMITTED:     March 18, 1957

AVAILABLE:     Library of Congress

Card 3/3

86746

*9,6150*
*5.5700 (1043, 1228, 1273)*
*26.2312*
*11.1320*

S/120/60/000/006/021/045
E032/E514

AUTHORS:  Tal'roze, V.L., Dekabrun, L.L., Tantsyrev, G.D.,
Frankevich, Ye.L., Vetrov, O.D., Lyubimova, A.K.,
Lavrovskaya, G.K., Yerofeyev, V.I., Grishin, V.D.,
Skurat, V.Ye. and Yukhvidin, A.Ya.

TITLE:  The PMC-2 (RMS-2) Mass Spectrometer Designed for
Studying Chemical Reactions and the Determination of
Free Radicals

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No.6, pp.78-84

TEXT:  A double magnetic mass-spectrometer designed for study-
ing reactions in the gaseous phase and, in particular, for the
determination of free radicals is described. Two methods are used
to produce the ions. In the first method the mixture to be
analysed is ionized by charge transfer to specially produced ions.
The latter are formed in a separate ion gun by means of electron
bombardment and are mass-analysed in a small magnetic analyser.
In the second method the mixture under consideration is ionized
directly by electron bombardment. Quasi-monochromatization is
achieved by a method based on that reported by Fox et al. (Ref.11).
The gas from the "reactor" is introduced into the ion source in the
Card 1/6

86746

S/120/60/000/006/021/045
E032/E514

The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical
Reactions and the Determination of Free Radicals

form of a molecular beam which is mechanically interrupted at a
known frequency. In distinction to the method described by Foner
and Hudson (Ref.2), in which the molecular and ion beams are
perpendicular, in the present system the two beams are coaxial,
which means that smaller voltages are necessary for the "extraction"
of the ions from the ionization region and it is possible to reduce
the intensity of the background mass-spectrum. A particular feature
of the present instrument is the use (in the measuring part of the
spectrometer) of K-stabilization of parameters such as the
accelerating voltage, the voltage supplying the detector, the
emission current of the ion gun cathode, and the supply voltage for
the ion source cathode. This was described by the second of the
present authors in Ref.10. The mass numbers are determined from a
knowledge of the magnetic field which in turn is measured with the
aid of a Hall probe (germanium crystal). The basic mass spectro-
metric arrangement employed is shown in Fig.2. Products of
chemical reactions taking place in the "reactor" I enter the
region II through a small aperture in the thin glass diaphragm 8
Card 2/6

86746

S/120/60/000/006/021/045
E032/E514

The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical Reactions and the Determination of Free Radicals

in the form of a molecular beam. This molecular beam is collimated further by the diaphragm 6 which separates the volume II from the region in which ionization takes place. A moveable screen 7 is placed in front of the diaphragm 6 and interrupts the molecular beam 33 times per sec. In the case of ionization by charge transfer, the primary ions are produced in the ion gun III. The ion beam formed there is mass analysed in the 60° magnetic analyser IV which has a working radius of 100 mm. The primary ion beam, consisting of ions of the required mass, intersects the molecular beam and charge transfer takes place. In the case of ionization by electron impact, the source becomes analogous to that described by the first and fourth of the present authors in Ref.9. In the case of ionization by a monochromatized electron beam, the modulation of the molecular beam by the chopper 7 is not employed. The ion current in the mass-spectrometer is measured either by a d.c. amplifier or by an electron multiplier. The vacuum chamber of the mass-spectrometer is an all-metal system and all the sections are out-gassed at 300 to 350°C before the operation is begun. As an illustration of
Card 3/6

86746

S/120/60/000/006/021/045
E032/E514

The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical Reactions and the Determination of Free Radicals

the possible applications of the instrument, data are quoted on the formation of free radicals in the pyrolysis of hydrazine. In these experiments the hydrazine entered from a glass container into a quartz capillary through a control valve. The capillary was heated to a known temperature, as a result of which the hydrazine decomposed into nitrogen, hydrogen, ammonia and some unstable products (Foner and Hudson, Ref.18). Fig.7 shows the distribution of line intensities in the mass-spectrum of hydrazine obtained by the charge transfer method using $HH_2^+$ ions formed from ammonia. The pressure in the source was $5 \times 10^{-5}$ mm Hg and the pressure in the chamber of the small analyser was $4 \times 10^{-5}$ mm Hg. For comparison, the dotted line shows the mass-spectrum obtained on bombarding hydrazine with 50 eV electrons. Fig.8 shows the intensity distribution obtained under similar conditions at 1000°C (dotted lines) and 25°C (continuous lines). Acknowledgments are expressed to Ye. K. Russiyan, B. T. Vorob'yev, B. G. Belov, M. N. Morozov and M. I. Markin for assistance in this work. There are 8 figures and 20 references: 11 Soviet and 9 non-Soviet.
Card 4/6
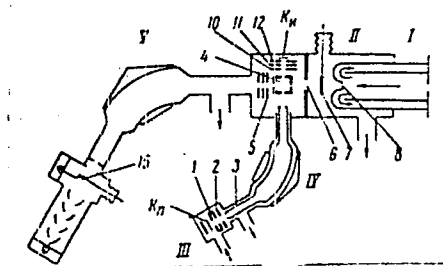
86746
S/120/60/000/006/021/045
E032/E514

The PMC-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical
Reactions and the Determination of Free Radicals

ASSOCIATION:   Institut khimicheskoy fiziki AN SSSR (Institute of
               Chemical Physics, AS, USSR)

SUBMITTED:     October 15, 1959

### Fig.2

I - reactor, III - ion gun, IV - small magnetic analyser,
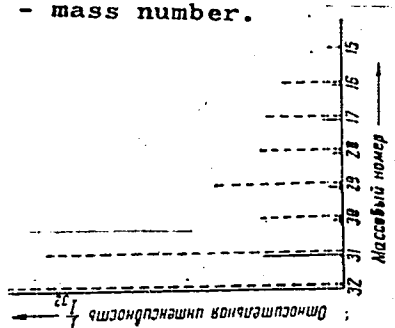V - large magnetic analyser



Card 5/6

86746b

S/120/60/000/006/021/045
E032/E514

The $PMC$-2 (RMS-2) Mass Spectrometer Designed for Studying Chemical
Reactions and the Determination of Free Radicals

### Fig.7

Comparison of mass-spectra of
hydrazine obtained on electron
bombardment (dotted) and charge
transfer from $NH_3^+$ ions (full lines).
Key: 1 - relative intensity,
     2 - mass number.

### Fig.8

Charge transfer mass spectra
of hydrazine and its decompo-
sition products at 1000°C
(dotted) and 25°C (full line).
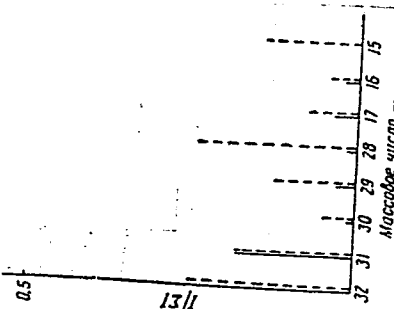
Card 6/6

16.9500

77482
SOV/103-21-1-13/22

AUTHOR:    Dekabrun, L. L. (Moscow)

TITLE:     On Amplifiers of Error Signals of Electrical Automatic
           Control Systems

PERIODICAL:  Avtomatika i telemekhanika, 1960, Vol 21, Nr 1, pp 106-
             111 (USSR)

ABSTRACT:   In this study a new method is explained for designing
            circuits of synchronous detection with considerably
            reduced delay introduced into the system by amplifiers
            of slowly changing voltages.  On Fig. 1a, a well-known
            system of synchronous detection is shown.  The detection
            is shown.  The delay in amplifiers with conversion of
            the input signal is caused by filters smoothing the
            output voltage of the system.  Somewhat simplified
            graphs of the component output voltages $U_2^!$ and $U_2^"$ are
            shown on Fig. 1b.  The resultant output voltage $U_2$, of
            the synchronous detector and amplifier, equals the
            difference between voltages $U_2^!$ and $U_2^"$.  Conditions for

Card 1/7

On Amplifiers of Error Signals of Electrical          77482
Automatic Control Systems                             SOV/103-21-1-13/22

good smoothing of the output voltage and the relative
amplitude of pulsations are determined.  On Fig. 2 the
constant component voltage $U_{20}$ and the relative ampli-
tude of pulsations $\epsilon$ are shown as functions of the time
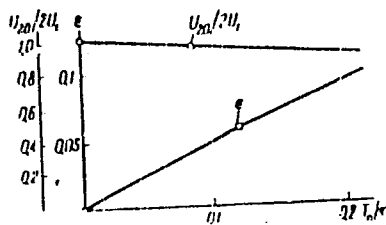constant of the smoothing filter.



Fig. 2.

Card 2/12

On Amplifiers of Error Signals of Electrical
Automatic Control Systems

77432
SOV/103-21-1-13/22

The transient transfer function of the synchronous
detector, i.e., its response to the sudden change in the
detected voltage $U_1$, is discussed. The increase and
decrease in the output voltage are noncontinuous pro-
cesses, and thus they do not change according to
exponential rules. As voltage increases the capacitors
are charged only during a fraction of the positive half
periods; during the remaining time they discharge on
their load resistances. Let the voltage of the error
signal, i.e., the input voltage of the system, be given
in the form:

$$U_{inp} = U_M \cos \omega_1 t. \qquad (6)$$

For a modulated frequency $\omega_0$ the input frequency $\omega_1$
must be within the range

Card 3/12
7

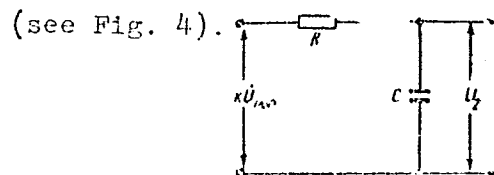On Amplifiers of Error Signals of Electrical          77482
Automatic Control Systems                              SOV/155-21-1-13/22

$$0 = \omega_1 = 5(0,1 \div 0,2)\omega_0,\qquad(7)$$

The detected voltage $U_1$ is in the form:

$$U_1 = (U_M \cos\omega_1 t)\sin\omega_c t.\qquad(8)$$

In order to determine the use of the amplifier in the
closed loop dynamic system, the equivalent diagram of the
amplifier of a time constant $T_c$ = RC is considered
(see Fig. 4).



Card 5/12
7

5.0
7

... all (C ... this ...
... and limits ... considers ... 
... state of ... with "..." ...
... with the capacit... 
... arrangement ... the caps... two ... 
... either locate ly ... 
... box circuit. The functional block diagram of an
amplifier with the conversion of input voltage and ...
inertia-free push-pull ... detector is shown
on Fig. 5. The diagram of ... in the circuits
of this arrangement ... shown on Fig. 7. The notati...
correspond to the notations shown on Fig. ... The ...
difficulties are connected with the accuracy of syn-
chronizing the ... period and with the accur...
of coincidence of characteristics of two channels of
the arrangement. ... Fig. 8 ... diagram of ...
... is shown op... ... "..." ...
... synchronous ... 

6/7

On Amplifiers of Error Signals of Electrical       77482
Automatic Control Systems                          SOV/103-21-1-13/22

Tubes $T_{1a}$ and $T_{1b}$ operate in the circuit of the multi-
vibrator. The operation of this sytem is described.
The gain of this system is about 400. There are 8
figures; and 8 references, 2 Soviet, 3 U.K., 3 are
U.S. The 5 most recent U.K. and U.S. references are:
Verhagen, C., A Survey of the Limits in D-C Amplifica-
tion, Proc. IRE, Nr 5, 1953; Hutcheon, S. C., D-C to
A-C Conveter Circuits, Proc. IRE, Vol 104C, Nr 6,
1957; Krentz, F. H., Transfer Function of D-C Chopper
Amplifier, Electron. Eng., Vol 76, Nr 9, 1957; Davis,
D. L., A Fast-Acting Phase Conscious Indicator,
Electron. Eng., Vol 75, Nr 9, 1956; McFadden, M. N.,
D-C Amplifier With Zero Input Correction, Electronic
and Radio Engineering, Vol 10, Nr 10, 1957.

SUBMITTED:       February 16, 1959

Card 7/1

*9,6000 (1163 ONLY)*

*S.5700 (1043, 1273, 1282)*

20700
S/120/61/000/001/038/062
E032/E114

AUTHORS:     Bystrov, V.F., Dekabrun, L.L., Kil'yanov, Yu.N.,
             Stepanyants, A.U., and Utyanskaya, E.Z.

TITLE:       A High-Resolution Nuclear Magnetic Resonance Apparatus

PERIODICAL:  Pribory i tekhnika eksperimenta, 1961, No.1, pp.122-125

TEXT:        The resolution of NMR spectrometers is determined
by the following factors:   (a) uniformity of the constant magnetic
field over the volume of the specimen;  (b) stability of the
constant magnetic field in time;  and  (c) frequency stability of
the radio-frequency magnetic field.   In the  NMR  spectrometer
described in the present paper a resolution of $10^{-7}$ was achieved,
which means that all the above factors remain constant to within
1 in $10^7$.   The apparatus has been used to record spectra of
substances containing hydrogen and fluorene luclei.   Chemical
shifts and the spin-spin interaction constant can be measured to
an accuracy of better than 10%.   The spectrometer incorporates a
specially designed permanent magnet producing a field of 4530 oe.
The magnet has the following features:   (a) closed yoke,
ensuring maximum rigidity;   (b) fine and continuous adjustment of
Card 1/5

A High-Resolution Nuclear Magnetic Resonance Apparatus

the parallelism of the working surfaces of the pole-pieces;
(c) special coils are located on the poles and are used to
modulate and adjust the field; (d) the gap length is 3.2 cm and
the diameter of the working surface of the pole-pieces is 22 cm.
In order to achieve a highly uniform magnetic field the pole
pieces have a thickness of 6 cm and are specially annealed in a
hydrogen atmosphere. The working surfaces are plane to within
± 0.5 μ. The relative nonuniformity of the magnetic field in the
central region does not exceed $2 \times 10^{-6}$ over a volume of 1 $cm^3$.
Fig.2 shows the magnetic field chart in the central part of the
gap. The probe is illustrated in Fig.3. The substance under
investigation is placed in the thin-walled glass ampoule 3 which
is rotated at a rate of 10 000 rpm by a small air turbine. The
ampoule is held in position by the perspex rotor 2 of the
turbine. The lower end of the ampoule is centred by a teflon bush
6 and rests on the perspex plate 7. The body of the probe 5
is made from red copper. The coil is wound on the perspex former
4. The oscillator is quartz stabilized and works on the 3rd
Card 2/ 5

20700

S/120/61/000/001/038/062
E032/E114

A High-Resolution Nuclear Magnetic Resonance Apparatus

harmonic of the mechanical oscillations of the quartz resonator. Detailed circuits of the quartz oscillator and various amplifiers etc. are given.   Fig.5 shows a typical spectrum obtained for ethyl alcohol.   The volume of the specimen was 4 mm$^3$ and the time taken to record the spectrum was 50 sec.   In general, the volume of the specimen lies between 4 and 15 mm$^3$.   Acknowledgements are expressed to K.V. Vladimirskiy for valuable advice. There are 5 figures and 8 references:  1 Soviet and 7 non-Soviet.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR
              (Institute of Chemical Physics, AS USSR)

SUBMITTED:  February 2, 1960

Card 3/5

20700

S/120/61/000/001/038/062
E032/E114

A High-Resolution Nuclear Magnetic Resonance Apparatus
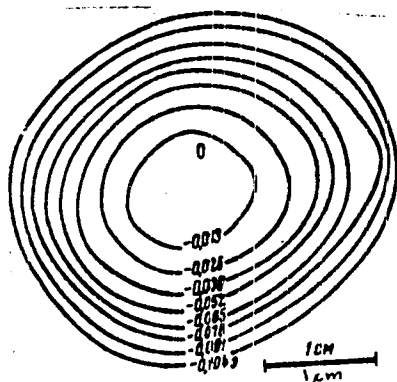
Fig. 2
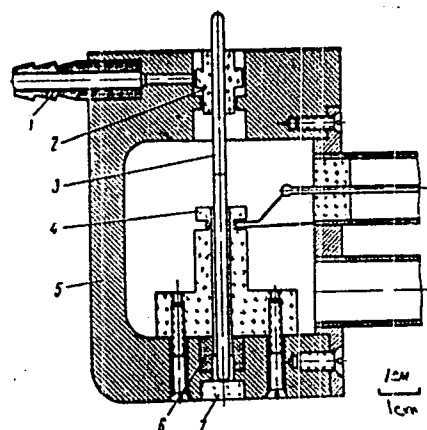
Fig. 3

Card 4/5

20700
S/120/61/000/001/038/062
E032/E114

A High-Resolution Nuclear Magnetic Resonance Apparatus

Fig. 5



30      20    MRC    10      0
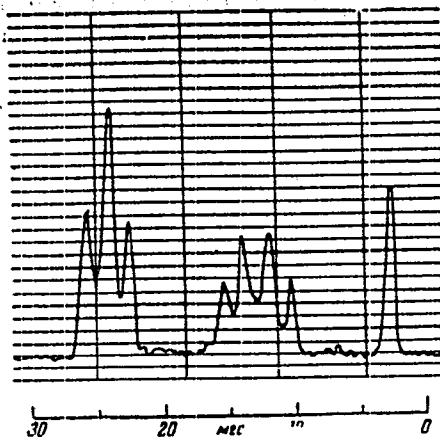
Card 5/5

AFANAS'YEV, V.A.; BYSTROV, V.F.; DEKABRUN, L.L.; KUL'YANOV, Yu.N.;
    STEPANYANTS, A.U.

    Multipurpose spectrometer of nuclear magnetic resonance.
    Zav.lab. 28 no.1:102-103 '62.                    (MIRA 15:2)

    1.  Institut khimicheskoy fiziki AN SSSR.
                    (Spectrometer)

VETROV, O.D. (Moskva); DEKABRUN, L.L. (Moskva)

Multipurpose pulse train generator.  Avtom. i telem. 24
no.11:1589-1592 N '63.                              (MIRA 16:12)

ACCESSION NR: AP4020295                     S/0139/64/000/001/0026/0031

AUTHORS: Vetrov, O. D.; Dekabrun, L. L.

TITLE:          Pulse apparatus for measuring nuclear magnetic relaxation time

SOURCE: IVUZ. Fizika, no. 1, 1964, 26-31

TOPIC TAGS: nuclear relaxation, spin lattice, magnetic field, radio frequency, pulse generation, nuclear magnetization, precession, pulse modulator, amplifier

ABSTRACT: The construction details of a pulse-measuring instrument have been described. Measurement of a wide range of nuclear relaxation times $T_1$ and $T_2$ in liquids as well as in solid bodies is possible using this apparatus. $T_1$ is the spin-lattice relaxation time and $T_2$ is the spin-spin or transverse relaxation time. For both relaxation measurements the specimen is placed in a constant magnetic field $H_0$ and, after attaining thermal equilibrium, is subjected to the action of radio frequency (rf) field $H_1$ in the form of a direct pulse. The frequency field $H_1$ must satisfy the resonance condition

$$\omega_0 = \gamma H_0$$

Card 1/2

ACCESSION NR: AP4020295

$\gamma$-gyromagnetic ratio. Under the rf field the nuclear magnetization vector departs from its equilibrium position by the angle $\Theta$ where

$$\Theta = \gamma H_1 t_w.$$

A list of methods for measuring the relaxation time is given, consisting of measuring the decay of spin-echo amplitudes and the decay of free precession after the rf impulse. The block-diagram of an instrument for measuring the relaxation time is given. The specimen is bombarded by an rf pulse coming in from the amplifier capacity of a transmitting counter coil. The amplifier capacity is guided by a modulator which receives the pulses from a programmer. The time sequence of these pulses is determined experimentally by selecting a particular program. The instrument is also shown to be capable of measuring the self-diffusion coefficient. Orig. art. has: 4 formulas, 3 figures, and 1 table.

ASSOCIATION: none

SUBMITTED: 27Sep62          DATE ACQ: 31Mar64          ENCL: 00

SUB CODE: EC               NO REF SOV: 001             OTHER: 011

Card 2/2

L 6942-65
ACCESSION NR: AP4033112                        S/0120/64/000/002/0072/0075

34

AUTHOR: Dekabrun, L. L. ; Kil'yanov, Yu. N.

TITLE: Generating long-duration linear sweeps

SOURCE: Pribory* i tekhnika eksperimenta, no. 2, 1964, 72-75

TOPIC TAGS: sweep, linear sweep, precision linear sweep, long duration linear
sweep, nuclear magnetic resonance spectrometer, spectrometer linear sweep

ABSTRACT: A theoretical investigation and an experimental development of an
integrating-circuit-type generator of linearly-time-varying, high-precision, long-
duration voltages are reported. The generator is intended for sweeping various
spectra. Assuming that a linear voltage produced by electronic means can be
represented by the initial part of an exponential curve, the integrating capacitor
leakage, the grid current of the amplifier's first tube, and the amplifier drift
are theoretically considered; these three factors essentially limit the potenti-
alities of the integrating amplifier. A practical circuit of a generator intended
for nuclear-magnetic-resonance sweep is briefly described. Sweeps of up to 40 min
duration at 0.7% nonlinearity are possible. The generator develops cross-cut-saw-

Card 1/2

L 6942-65
ACCESSION NR: AP4033112

tooth voltages with a period of 10 to 0.01 sec (continuous range) and rip-saw-tooth
voltages with a period of 4 to 2,400 sec. Orig. art. has 4 figures.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics,
AN SSSR)

SUBMITTED: 13Apr63                                                ENCL: 00

SUB CODE: NP, OP                      NO REF SOV: 002              OTHER: 000

Card 2/2

DEVYATKIN, I.I.; KULIKOV, Yu.K.; MARTISHKIN, V.K.

New-type transmitters of nuclear magnetic resonance signals.

Izv. AN Arm. SSR. Ser. fiz. matemat. nauk 18 no.3:33-42 '65.
(MIRA 18:6)

1. Institut khimicheskoy fiziki AN SSSR.

DEKABRUN, L.L.; MKRTCHYAN, A.R.

Amplification of the signals of errors in precision current
stabilizers. Izv. AN Arm. SSR. Ser.fiz.-mat. nauk 18 no.4:
106-118 '65.                                    (MIRA 18:9)

1. Institut khimicheskoy fiziki AN SSSR.

L 25293-65    EWT(1)/EWA(h)    Peb

ACCESSION NR:    AP5002650                                      S/0252/64/039/003/0171/0175

AUTHOR:  Dekabrun, L. L.; Mkrtchyan, A. R.

TITLE:  Reference voltage for high-precision current stabilizers

SOURCE: AN ArmSSR. Doklady, V. 39, no. 3, 1964, 171-175

TOPIC TAGS:  voltage stabilization, microwave spectroscopy, magnet current
stabilization, Zener diode, temperature compensation

ABSTRACT:  After explaining the main problems involved in stabilizing the mag-
netic field of microwave spectroscopes in time and ensuring the uniformity of
the field in space, and after listing the methods used for magnetic flux stabili-
zation in the most precise microwave spectrometers, the authors describe a cir-
cuit for stabilization of the excitation current in the electromagnet winding
by using a high precision reference voltage. To obtain a more accurate reference
voltage than is provided by chemical sources, the authors have developed a
temperature-compensated Zener-diode voltage divider, in which the temperature
rise of one resistor is offset by the rise in another resistor. A diagram of the

Card 1/3

L 25293-65
ACCESSION NR: AP5002650

compensated voltage divider is shown in Fig. 1 of the enclosure. This divider is used as the last stage of a standard rectifier circuit stabilized with both a ferroresonant circuit and with gas filled ballast tubes. The complete circuit can maintain the reference constant within $10^{-5}$ of its initial value in the temperature range from 18 to 45C. This report was presented by N. M. Kocharyan. Orig. art. has: 11 formulas and 6 figures.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR)

SUBMITTED: 00          ENCL: 01                    SUB CODE: EE, NP

NR REF SOV: 005          OTHER: 007

Card 2/3

DEKABRUN, L.L.; MKRTCHYAN, A.R.

System of controlling the excitation current for electromagnets in nuclear magnetic resonance spectrometers. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 18 no.1:140-152   '65.

(MIRA 18:6)

1. Institut khimicheskoy fiziki AN SSSR.

L 2000-66   EWT(1)/EPF(c)   IJP(c)   WW/GG

ACCESSION NR:  AP5018626                              UR/0022/65/018/003/0134/0142

AUTHOR:  Dekabrun, L. L.; Kil'yanov, Yu. N.; Mkrtchyan, A. R.

TITLE:  Autodyne nuclear magnetic resonance pickups

SOURCE:  AN ArmSSR, Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 18, no. 3, 1965, 134-142

TOPIC TAGS:  nuclear magnetic resonance, nmr spectroscopy, negative feedback, signal processing, stabilizer

ABSTRACT:  The authors present analysis of the stabilizing action of active negative feedback on autodyne pickups for the investigation of solids by the NMR method.  In such applications, autodyne pickups have certain advantages over others, but must be stabilized when the signal voltage is low, such as is the case with solid-state NMR.  The transients in an autodyne pickup with stabilized amplitude are calculated, and the modifications that must be introduced in the pickup circuit to ensure stability are described.  Empirical means of selecting the autodyne circuit and its parts to obtain maximum sensitivity are suggested, since a theoret-

Card   1/3

L 2000-66

ACCESSION NR: AP5018626                                                     3

ical analysis of this problem is impossible. A schematic diagram of a pickup with
stable operation at less than 0.005 volt on the resonant circuit is presented.
The diagram is shown in Fig. 1 of the Enclosure. This circuit has been thoroughly
tested and proved itself in practical investigations of several natural compounds
by the NMR method. Orig. art. has: 6 figures and 21 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics,
AN USSR)

SUBMITTED: 04Nov64              ENCL: 01              SUB CODE:

NR REF SOV: 005                 OTHER: 012

Card 2/3

Fig. 1.  Complete schematic diagram of autodyne  pickup, intended for
the investigation of crystals.

1 - Generator, 2 - low-frequency amplifier, 3 - detector, 4 - high-frequency
amplifier, 5 - to NMR signal amplifier.

Card  3/3

L 10902-66   EWT(l)/ETC(m)   IJP(c)   WW

ACC NR: AP6004502

SOURCE CODE:   UR/0022/65/018/001/0140/0152

AUTHOR: Dekabrun, L. L.; Mkrtchyan, A. R.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki, AN SSSR)

TITLE: System to control the exciting current of electromagnets of nuclear magnetic-resonance (NMR) spectrometers

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 18, no. 1, 1965, 140-152

TOPIC TAGS: current stabilization, automatic control, automatic control system, electromagnet, NMR spectroscopy, spectrometer, magnetic field

ABSTRACT: The article enumerates the requirements for the source of the main magnetic field $H_0$ in NMR spectrometers designed to investigate crystal structure: 1) long duration (up to two hours) and great depth (up to $0.1 H_0$) of linear scanning of the magnetic field during spectra recording; 2) the initial value of $H_0$ for various crystals may differ substantially within, say, 1 to 10 kilo-oersteds; 3) high homogeneity of the magnetic field and exact correspondence of $H_0$ to the value prescribed by experimental conditions. The third requirement relates to magnet design, while the first two requirements relate to the power-supply system. In order to investigate crystal order-disorder by NMR spectroscopy methods, the authors, jointly with the designers and technologists of the Production

Card 1/2

L 10902-66

ACC NR: AP6004501

Division of the Institute of Chemical Physics of the Academy of Sciences USSR (division director Ye. K. RUSSIYAN), developed a source of $H_0$ which meets all the requirements. The present article describes the power-supply system for the electromagnet. An electronic current stabilizer of the series type is used. The effect of line voltage oscillations is neutralized by the use of an electro-mechanical transducer with relatively coarse electronic stabilization of output voltage. The initial value of the exciting current of the electromagnet and the law of its scanning in time are established by means of two independent reference voltage sources in the current stabilization system. Since the scanning time may exceed two hours, mechanical scanning by means of a synchronous motor is employed. A specially developed reference voltage source is used: silicon stabilitron tubes with temperature-compensating dividers. The stabilization system uses 6S18S high-power triodes, with an optimal operational mode assured. The special design of the interruptor and error signal amplifier assures reliable amplification of microvolt signals. The control resistance is made of manganin wire in the form of a bifilar loop. The authors found a lack of correspondence between the actual behavior of the stabilization system and the behavior which might be expected on the basis of the generally accepted electromagnet substitution circuit. As a result, the pass band of the amplifier has to be limited, which operation is accomplished by increasing the time constant of the synchronous detector. Orig. art. has: 14 figures and 19 formulas. /JPRS/

SUB CODE: 13, 20, 09 / SUBM DATE: 18Apr64 / ORIG REF: 014 / OTH REF: 009

Card 2/2

DEKABRUN, L. ; TERESHCHENKOY, A.N., nauchn. red.

[Amplifiers and power supply sources] Usiliteli i istochniki pitaniia; uchebnoe posobie. Moskva, Rosvuizizdat.
Pt.2, 1961. 200 p.                              (MIRA 18:3)

L 15818-66    EWT(l)/EWA(h)

ACC NR: AP6000905                       SOURCE CODE: UR/0022/65/018/004/0106/0117

AUTHOR: Dekabrun, I. L.; Martchyan, A. R.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Amplification of error signals in precision current stabilizers

SOURCE: AN ArmSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, v. 18, no. 4, 1965, 106-117

TOPIC TAGS: error minimization, current stabilization, amplifier design, electronic circuit

ABSTRACT: The authors analyze the various parameters of error-signal amplifiers and their effect on the accuracy of current stabilizers (bandwidth, gain, sensitivity). Tentative values of these parameters are established for the most accurate systems employed in practice, namely systems for stabilizing the current in radio spectrometer electromagnets. The physical factors governing the tolerances that are imposed on the amplifier characteristics are discussed. An analysis is presented of the system for converting the signal when an input transformer is used. The transformerless conversion systems are also discussed, and methods of protection against possible interference are described. The difficulties in shielding transformers against external noise are discussed. A contact-making converter with magnetically isolated contact system is described. The main and auxiliary circuits of an RC amplifier for the purpose are given, as well as the circuits for phase adjustment and for synchronous detection (Fig. 1). The final amplifier designed had a sensitivity of

Card 1/2                                        2

L 15818-66

ACC NR: AP6000905

Fig. 1. Schematic diagram of RC
amplifier with maximum gain ~2 x 10⁶.
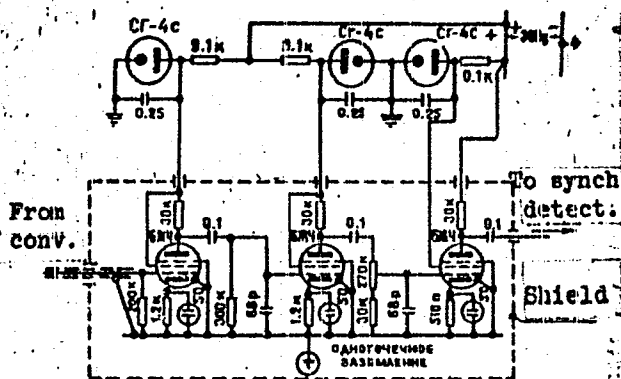


several tenths of a microvolt and a maximum gain more than $10^6$. It is stable over a
prolonged period of operation. Authors thank the members of the group of nuclear
magnetic resonance of the Institute of Chemical Physics of the SSSR Academy of
Sciences, O. D. Petrov, Yu. N. Kil'yanov, and K. S. Zimin for help with the work.
Orig. art. has: 7 figures and 22 formulas.
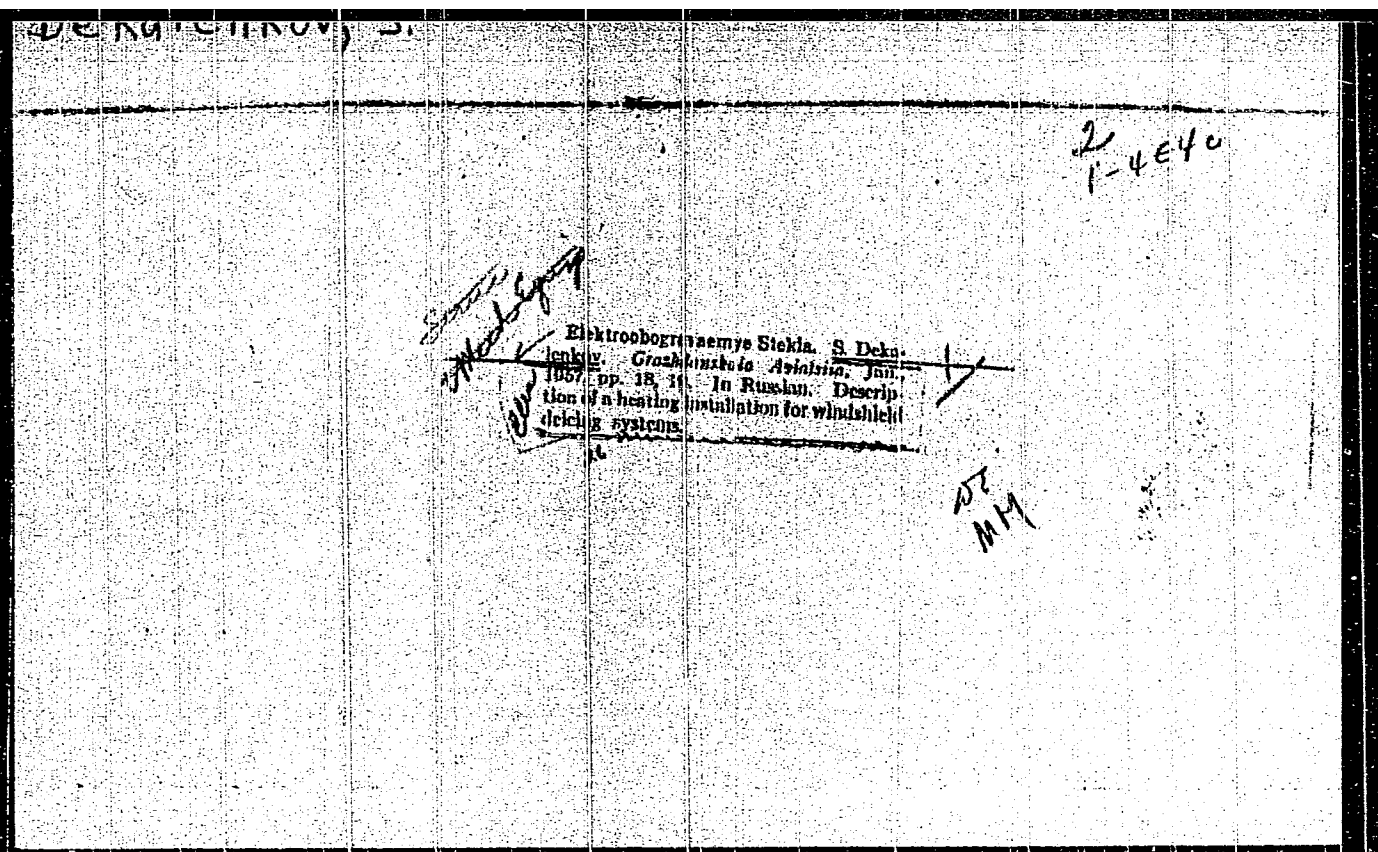
SUB CODE: 09/    SUBM DATE: 09Dec64/    ORIG REF: 007/    OTH REF: 005

Card 2/2

DEKABRUN, Ye.I., inzhener;  PAVLOV, V.P., inzhener.

Inoculation practice.  Lit.proizv. no.1:32 Ja '56.    (MLRA 9:5)
(Magnesium alloys)

Elektroobogrinaemye Stekla. S. Deka-
lenkiv. Grazhdanskoto Aviatsiia, Jan.
1957, pp. 18, 19. In Russian. Descrip-
tion of a heating installation for windshield
deicing systems.

DEKALENKOVA, T.S.; SVENTSITS'KA, Z.V.

Use of polyurethan porous plasti... in the manufacture of backed textile fabric.. T.S. Dekalenkova, Z.V. Sventsits'ka. Leh. prom. no.2:10-12   Ap-Je'64                           (MIRA 17:7)

KHACHATRYANTS, I.T.; OVCHINNIKOV, E.V.; GOLOVACH, V.N.;
        MITRAKOVICH, T.M.; DROZD, G.V.; BIKALLO, N.G.;
        VLADIMIROV, L.A.

[Small-scale mechanization in the construction industry
and its effectiveness] Malaia mekhanizatsiia  stroitel'-
stve i ee effektivnost'. Minsk, Izd-vo M-va vysshego,
srednego spetsial'nogo i professional'nogo obrazovaniia
BSSR, 1963. 33 p.                            (MIRA 17:8)

KOTEL'NIKOV, N.V.; ANDREYEV, F.G.; MATYASHA, R.N.; SYSOYEV, G.N.;
    DEKAMILLI, G.M.

Large panels made of reinforced expanded clay concrete [Suggested
by N.V. Kotel'nikov and others]. Rats. i izobr. predl. v stroit.
no.6:7-11 '58.                                    (MIRA 11:10)
        (Concrete slabs)     (Ceilings)

GRIN'KOV, Yu.V., kand.tekhn.nauk; MARTYSHKIN, A.Ye., kand.tekhn.nauk;
    DEKAMILI, L.Ye., inzh.; ZHAROV, V.P., inzh.

    Dynamic balancing of the drum of the INK-3,5 chopper. Trakt. i
    sel'khozmash. no.3:39-40 Mr '65.                    (MIRA 18:5)

MARTYSHKIN, A.Ye., kand. tekhn. nauk; GRIN'KOV, Yu.V., kand. tekhn. nauk; DEKAMILI, I.Ye., inzh.

Dynamic balancing of threshing cylinders of the SK-4 combine.
Trakt. i sel'khozmash. no.10:27-28 O '64.          (MIRA 17:12)

GRIN'KOV, Yu.V., kand.tekhn.nauk; MARTYSHKIN, A.Ye., kand.tekhn.nauk; DEKAMILI, L.Ye., inzh.; ALEKSEYEV, L.I., inzh.

Studying the vibration of the SK-4 combine. Trakt. i sel'khoz mash. no.2:24-26 F '65.                                           (MIRA 18:4)

ERA', ...

The International Motorcycle Federation is sixty years old. Into motor 17 no.22:29 12 N '61.

DEKAN, JANOS

HUNGARY/Chemical Technology, Chemical Products and Their          H-5
         Application, Part 1. - Water Treatment, Sewage.

Abs Jour: R ferat. Zhurnal Khimiya, No 10, 1958, 32925.

Author  : Éva Németh, János Dekán.
Inst    : Not given.
Title   : Conditions of Scaleless Regime of Condenser Work.

Orig Pub: Magyar energiagazd., 1956, 9, No 11 - 12, 454-460.

Abstract: The question of altering the composition of circulating
         water at thermal power stations was studied. Departing
         from the conception of the carbonic acid equilibrium
         and taking into consideration the rate of $CaCO_3$ cry-
         stallization, the authors present graphs, which allow to
         determine the highest permissible hardness of the cool-
         ing water, at which no scale will be formed, as well

Card    : 1/2

14

DEKAN, S.

31

MEZOGASDASGI IPAR — AGRICULTURAL INDUSTRY
VOL. IV. — 1950
No. 9, Sept.

MEZŐGAZDASÁGI IPAR —
AGRICULTURAL INDUSTRY

Vol. IV  1950

No. 9, Sept.

S. Dékán:                     331.215:661
The significance of the 1950 norm
adjustment and the raise in basic wage
for the further development of the food
industry ................................  pp. 1  6

A S A , S L A  METALLURGICAL LITERATURE CLASSIFICATION

HASZ, Istvan; VAJTA, Laszlo; KISS, Istvan; MORA, Ferenc; RASZTOCZKY, Erno;
DEKAN, Sandor

Organisational questions of the gas industry. Energia es atom
13 no.3;117-121 Mr '60.

1. Fovarosi Gazmuvek (for Kiss). 2. Budapesti Partbizottsag Ipari
Osztalya (for Dekan).

DEKAN', V.F., inzh.

Improved discharge pan for filter presses. Masl.-zhir.prom. 25
no.3:38 '59.                                                    (MIRA 12:4)

1. Yevdakovskiy zhirovoy kombinat.
                              (Filter presses)

DEKANIC, Djura, dr.; KOVACEV, Milodar

The use of antibiotics in gynecology and obstetrics. Med. pregl.,
Novi Sad 7 no.3:245-249 1954.

1. Ginekolosko-akusersko odeljenje Glavne pokrajinske bolnice,
Novi Sad, sef dr. Djura Dekanic.
(ANTIBIOTICS, ther. use
in gyn. & obst.)
(GYNECOLOGICAL DISEASES, ther.
antibiotics)
(OBSTETRICS
antibiotic ther. in)

DEKANIC, Djura; BERIC, Berislav

Colpomicroscopy in early diagnosis of carcinoma of portio
vaginalis of uterus. Med. glasn. 10 no.10:409-414 Oct 56.

1. Centralni onkoloski dispanzer NR Srbije u Beogradu
(upravnik prof. dr. S. Simic).
      (CERVIX NEOPLASMS, diag.
            colpomicroscopy (Ser))

DEKANIC, I.

Some data on silviculture in France.  p.315.  SUMARSKI LIST.  Zagreb.
Vol. 79, no. 9/10, Sept./ Oct. 1955.

SOURCE:  East European Accessions List (EEAL), Library of Congress
Vol. 5, No. 6, June 1956

DEKANIC, I.

Care of forests as a measure in the improvement of forestry production. p. 339.

Periodical: SUMARSKI LIST.

Vol. 82, no. 10, Oct. 1958.

AGRICULTURE

SO: Monthly List of East European Accessions (EEAI) LC

Vol. 8, No. 4
April 1959, Uncl.

DEKANIC, I.

Influence of groundwater on the occurrence and growth of various forest tree species in the Sava River Valley at Lipovljani. Bul sc Youg 7 no.6:172 D '62.

1. Sumarski fakultet, Sveuciliste, Zagreb.

DEKANIC-MILOSEVIC, Vida, Dr.; IVANCEVIC-CUDIC, Stojanka

Hormonal therapy of imminent abortion. Med. pregl. 7 no.1:28-35 1954.

1. Ginekolosko-porocajno odeljenje Gl. pokr. bolnice, N.Sad. Sef: Dr. Dj. Dekanic. Dispanzer za zene, N.Sad. Sef: dr S.Ivancevic-Sudic.
        (ABORTION,
            *threatened, ther., progesterone)
        (PROTESTERONE, therapeutic use,
            *abortion, threatened)

DEKANIC-MILOSEVIC, Vida, dr.

Hormonal disorders and pregnancy. Med. pregl., Novi Sad 7 no.4:
282-285 1954.

1. Ginekolosko-porodjajno odeljenje Glavne pokrajinske bolnice,
Novi Sad, sef dr. Dj. Dekanic.
        (PREGNANCY, in various dis.
          hormonal disord., ther.)
        (MENSTRUATION DISORDERS, ther.
          hormones)

DEKANIC-MILOSEVIC, Vida dr.; KOVACEV, Milodar, dr.

Two hundred women examined and treated for sterility; immediate results. Srp arhiv lekar 82 no.4:484-491 Ap '54.    (KEAL 3:7)

1. Ginekolosko-porodjajno odeljenje Glavne pokrajinske bolnice u Novom Sadu, sef: dr. Djura Dekanic. (Rad je Urednistvo primilo 7-VIII-1953 god.)
        (STERILITY, FEMALE, ther.      (FALLOPIAN TUBES
          *tubal insufflation)  .        *insufflation, in sterility)

DEKANOIDZE, G. I.

Dissertation: "Results of the Appearance of Harmful Fauna on the Yield of the Mulberry Tree and the Study of Eucanium corni Bouche in Georgia." Cand Agr Sci, Georgia Agricultural Inst, 29 Jun 54. (Zarya Vostoka, Tbilisi, 15 Jun 54)

SO: SUM 318, 23 Dec 1954

DEKANOIDZE, G.I., kand.sel'skokhoz.nauk

A new species of grape mites. Zashch. rast. ot vred. i bol. 2
no.6:56-57 N-D '57.
(MIRA 16:1)
(Georgia—Grapes—Diseases and pests)
(Georgia—Red spider)

DEKANOIDZE, G.I.

USSR/General and Special Zoology. Insects. Injurious In-    P
        sects and Ticks. Pests of Fruit and Berry Crops

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49686

Author    : Dekanoidze G.I.
Inst      : -
Title     : A New Species of the Grape Mite (Brevipalpus
            Lewisi Mcg.)

Orig Pub : Zashchita rast. ot vrodit. i boleznoy, 1957,
           No 6, 56-57

Abstract : No abstract

Card      : 1/1

DEKANOIDZE, G.I.

Occurrence of the tetranychid mite Brevipalpus lewisi McGregor in the Georgian S.S.R. Soob. AN Gruz. SSR 19 no.3:343-345 S '57.
(MIRA 11:5)

1. Institut sadovodstva, vinogradarstva i vinodeliya Gruzinskoy SSR. Predstavleno chlenom-korrespondentom akademii L.P. Kalandadze.
(Georgia--Red spider)   (Grapes--Diseases and pests)

BONDARENKO, N.V.; ISMAYLOV, A.V.; SHCHERBINOVSKIY, N.S.; DEKANOIDZE, G.I.,
        dotsent

        Anniversaries of our specialists.  Zashch. rast. ot vred. i
        bol. 8 no.6:61-62 Je '63.                        (MIRA 16:8)

        1. Dekan fakul'teta zashchity rasteniy Leningradskogo sel'skokhozyatst-
        vennogo instituta (for Bondarenko).  2. Chlen-korrespondent
        Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. Lenina
        (for Shcherbinovskiy).
                    (Bei-Bienko, Grigorii Iakovlevich, 1903-)
                    (Aleksandrov, Nikolai Vasil'evich, 1903-)
                    (Batiashvili, Iraklii Dmitrievich, 1903-)

ELDERDASHVILI, N.L., kand.sel'skokhoz.nauk; DEKANOIDZE, G.I., kand.sel'skokhoz. nauk

Cicadas harmful to corn in Georgia. Zashch. rast. ot vred. i bol. 6 no.12:46  D '61.                                                     (MIRA 16:5)

DEKANOIDZE, G., kand. sel'skokhoz. nauk

Peach scale Parthenolecanium persicae on a mulberry. Zashch.
rast. ot vred. i bol. 10 no.10:57-58 '65.

(MIRA 18:12)

1. Gruzinskiy sel'skokhozyaystvennyy institut.

DEKANOSIDZE, T. I.

"Structural and Certain Functional Changes in the Nervous System During the Ontogenesis in Dogs." Acad Med Sci USSR, Tbilisi, 1955. (Dissertation for the Degree of Candidate of Medical Sciences)

SO:  N-972, 20 Feb 56